What is claimed is:

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1. A system for a communication station wherein the system handles both reception signals collected via an antenna and transmission signals generated by the communication station for transmission via the antenna, comprising:

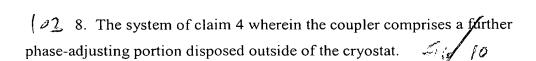
a cryostat;

a receive path carrying the reception signals and disposed in the cryostat; and

a transmit path carrying the transmission signals;

wherein the receive path and the transmit path are coupled between the system and the antenna and between the system and the communication station.

- 2. The system of claim 1 further comprising a coupler that couples the receive path and the transmit path between the antenna and the system.
 - 3. The system of claim 2 wherein the coupler includes a phase-adjusting portion disposed in the cryostat.
- 4. The system of claim 3 wherein the receive path comprises a receive filter disposed in the cryostat.
 - 5. The system of claim 4 wherein the receive filter comprises a high-temperature superconducting material.
 - 6. The system of claim 4 wherein the transmit path comprises a conventional transmit filter.
- 7. The system of claim 4 wherein the phase-adjusting portion comprises a cable that couples the receive filter to the antenna.



- 9. The system of claim 4 wherein phase-adjustment via the coupler is provided solely by the phase-adjusting portion disposed in the cryostat.
 - (> \ge 10. The system of claim 1 further comprising a coupler that couples the receive path and the transmit path between the system and the communication station.

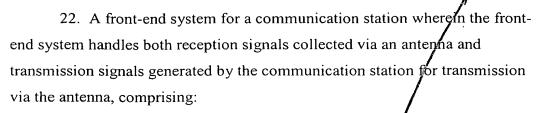
11. The system of claim 10 wherein the coupler includes a phase-adjusting portion disposed in the cryostat.

c_L \(\nabla \) 12. The system of claim 11 wherein the coupler comprises a further phase-adjusting portion disposed outside of the cryostat.

- 13. The system of claim 1/1 wherein phase-adjustment via the coupler is provided solely by the phase-adjusting portion disposed in the cryostat.
- 20 14. The system of claim 1 further comprising a duplexer that couples the receive path and the transmit path between the system and the communication station.
- 15. The system of claim 1 wherein the receive path comprises a receive filter and a low-noise amplifier.
 - fig. \$16. The system of claim 15 wherein the receive path further comprises a further filter such that the low-noise amplifier couples the receive filter to the further filter.



- 17. The system of claim 15 wherein the receive filter comprises means for protecting the receive filter from a transmission signal carried by the transmit path.
- 18. The system of claim 15 wherein the receive filter comprises a first stage modified to protect the receive filter from a transmission signal carried by the transmit path.
- 19. The system of claim 1 further comprising a cable wherein the cable carries the reception signals and the transmission signals between the system and the communication station.
 - 20. The system of claim 19 wherein the antenna and the system are disposed upon an antenna tower having a length such that the cable runs the length of the antenna tower.
 - 21. The system of claim 1 wherein the system is disposed upon an antenna tower.



a cryostat;

a receive path carrying the reception signals and disposed in the cryostat;

a transmit path carrying the transmission signals;

a coupler that couples the receive path and the transmit path to the antenna and includes a phase-adjusting portion such that the transmission signals are not carried by the receive path;

a duplexer coupled to the receive path and the transmit path; and a cable coupled to the duplexer for carrying the reception signals and the transmission signals to and from the communication station, respectively.

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- 23. The front-end system of claim 22 wherein the receive path comprises a bandpass filter disposed in the cryostat.
- 24. The front-end system of claim 23 wherein the phase-adjusting portion of the coupler is disposed in the cryostat.
 - 25. The front-end system of claim 23 wherein the bandpass filter comprises means for protecting the bandpass filter from the transmission signals carried by the transmit path.

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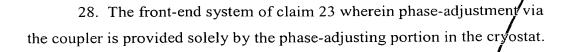
26. The front-end system of claim 23 wherein the bandpass filter comprises a first stage modified to protect the bandpass filter from the transmission signals carried by the transmit path.

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27. The front end system of claim 23 wherein the coupler comprises a further phase-adjusting portion disposed outside of the cryostat.

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- 29. The front-end system of claim 22 wherein the antenna is disposed upon and supported by an antenna tower having a length such that the cable runs the length of the antenna tower to couple the front-end system to the communication station.
- 30. A front-end system for a communication station wherein the frontend system handles both reception signals collected via an antenna and transmission signals generated by the communication station for transmission via the antenna, comprising:

a cryostat;

a receive path carrying the reception signals and disposed in the cryostat;

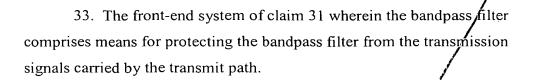
a transmit path carrying the transmission signals;

a first coupler that couples the receive path and the transmit path to the antenna and includes a phase-adjusting portion such that the transmission signals are not carried by the receive path;

a cable for carrying the reception signals and the transmission signals to and from the communication station, respectively; and

a second coupler that couples the receive path and the transmit path to the cable and includes a phase-adjusting portion such that the transmission signals are not carried by the receive path.

- 31. The front-end system of claim 30 further comprising a cryostat wherein the receive path comprises a bandpass filter disposed in the cryostat.
- 32. The front-end system of claim 31 wherein the phase-adjusting portion of the coupler is disposed in the cryostat.



- 5 34. The front-end system of claim 31 wherein the bandpass filter comprises a first stage modified to protect the bandpass filter from the transmission signals carried by the transmit path.
- 35. The front-end system of claim 31 wherein the coupler comprises a further phase-adjusting portion disposed outside of the cryostat.
 - 36. The front-end system of claim 31 wherein phase-adjustment via the coupler is provided solely by the phase-adjusting portion in the cryostat.
- 37. The front-end system of claim 30 wherein the antenna is disposed upon and supported by an antenna tower having a length such that the cable runs the length of the antenna tower to couple the front-end system to the communication station.
- 38. A front-end system for a communication station wherein the frontend system handles both reception signals collected via an antenna and transmission signals generated by the communication station for transmission via the antenna, comprising:
 - a cryostat;

- a receive path carrying the reception signals and disposed in the cryostat;
 - a transmit path carrying the transmission signals;
- a first cable coupled to both the receive path and the transmit path that carries both the transmission signals and the reception signals to and from the antenna, respectively; and

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a second cable coupled to both the receive path and the transmit path that carries both the reception signals and the transmission signals to and from the communication station, respectively.

- 39. The front-end system of claim 38 wherein the antenna is disposed upon and supported by an antenna tower having a length such that the second cable runs the length of the antenna tower to couple the receive path and the transmit path to the communication station.
 - 40. The front-end system of claim 38 further comprising:
- a first coupler that couples the first cable to the receive path and includes a phase-adjusting portion such that the transmission signals are not carried by the receive path;
- a second coupler that couples the second cable to the receive path and includes a phase-adjusting portion such that the transmission signals are not carried by the receive path.
 - 41. The front-end system of claim 38 further comprising:
- a coupler that couples the first cable to the receive path and includes a phase-adjusting portion such that the transmission signals are not carried by the receive path;
 - a duplexer that couples the second cable to the receive path such that the transmission signals are not carried by the receive path.
- 25 42. The front-end system of claim 38 wherein the receive path comprises a bandpass filter disposed in the cryostat.
 - 43. The front-end system of claim 42 wherein the bandpass filter comprises means for protecting the bandpass filter from the transmission signals carried by the transmit path.



- 44. The front-end system of claim 42 wherein the bandpass filter comprises a first stage modified to protect the bandpass filter from the transmission signals carried by the transmit path.
- 5 45. The front-end system of claim 42 wherein the coupler comprises a further phase-adjusting portion disposed outside of the cryostat.
 - 46. The front-end system of claim 42 wherein phase-adjustment via the coupler is provided solely by the phase-adjusting portion in the cryostat.



47. A front-end system for a communication station wherein the frontend system handles both reception signals collected via an antenna and transmission signals generated by the communication station for transmission via the antenna, comprising:

a cryostat;

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a receive path carrying the reception signals and disposed in the cryostat; and

a transmit path carrying the transmission signals;

wherein the receive path is duplexed with the transmit path such that
the front-end system has a first single input/output connection for coupling the
front-end system to the antenna and a second single input/output connection
for coupling the front-end system to the communication station.

- 48. The system of claim 47 further comprising a coupler that couples the receive path and the transmit path between the antenna and the system.
- 49. The system of claim 48 wherein the coupler includes a phase-adjusting portion disposed in the cryostat.
- 50. The system of claim 49 wherein the receive path comprises a receive filter disposed in the cryostat.
 - 51. The system of claim 50 wherein the receive filter comprises a high-temperature superconducting material.
 - 52. The system of claim 51 wherein the transmit path comprises a conventional transmit filter.
- 53. The system of claim 49 wherein the phase-adjusting portion comprises a cable that couples the receive filter to the antenna.



- 54. The system of claim 49 wherein the coupler comprises a further phase-adjusting portion disposed outside of the cryostat.
- 55. The system of claim 49 wherein phase-adjustment via the coupler is provided solely by the phase-adjusting portion disposed in the cryostat.
 - 56. The system of claim 47 further comprising a coupler that couples the receive path and the transmit path between the system and the communication station.
 - 57. The system of claim 56 wherein the coupler includes a phase-adjusting portion disposed in the cryostat.
 - 58. The system of claim 57 wherein the coupler comprises a further phase-adjusting portion disposed outside of the cryostat.
 - 59. The system of claim 57 wherein phase-adjustment via the coupler is provided solely by the phase-adjusting portion disposed in the cryostat.
- 20 60. The system of claim 47 further comprising a duplexer that couples the receive path and the transmit path between the system and the communication station.